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ABSTRACT

Reading research is an important aspect of the Kamehameha Early Education Program. This report describes the overall strategy of the reading research program, which is based on a conceptual framework that divides lines of inquiry into activation, linguistics, instructional procedures, and correlational analysis. Preliminary results for each of these components are discussed, future plans are outlined, and progress so far is summarized. (Author/AA)

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Overall Strategy and Preliminary Results

Technical Report #23

of

The Kamehameha Early Education Program

a research and development program established and funded by

The Kamehameha Schools/Bernice P. Bishop Estate

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The Kamehameha Early Education Program

The Kamehameha Early Education Program (KEEP) is a research and development program of The Kamehameha Schools/Bernice P. Bishop Estate. The mission of KEEP is the development, demonstration, and dissemination of methods for improving the education of Hawaiian and Part-Hawaiian children. These activities are conducted at the Ka Na'i Pono Research and Demonstration School, and in public classrooms in cooperation with the State Department of Education. KEEP projects and activities involve many aspects of the educational process, including teacher training, curriculum development, and child motivation, language, and cognition. More detailed descriptions of KEEP's history and operations are presented in Technical Reports #1-4.

Technical Report #23

KEEP Reading Research 1974:

Overall Strategy and Preliminary Results[1]

Roland G. Tharp Ronald Gallimore

with contributions by

Kathy Au and Gisela E. Speidel

The Nature of the Problem

Learning to read is probably the crucial issue for success in school. Reading is foundational to the major parts of the educational curriculum; weakness in reading is inevitably reflected in low achievement in writing, the natural and social sciences--indeed in all schooling. The child who does not learn to read adequately becomes increasingly alienated from school in general, as he or she experiences more and more failure because the incremental steps for advanced learning cannot occur.

Problems in learning to read are a national—even international—concern. A variety of explanations are offered for the national decline in the language arts: from television watching to "liberal" (non-phonic) reading programs. Problems in learning to read are especially serious for some ethnic minorities and disadvantaged whites

[1] Crucial contributions to these formulations have been made by Kathy Au, who has primary responsibility for the execution of the reading research; Gisela E. Speidel, project coordinator; Ramona Hao, educational specialist and reading instructor; and Prof. Kenneth Smith, consultant.

in the U.S. For black, chicano, Puerto Rican, Indian, and poor children, billions of dollars and herculean efforts have been expended in a massive effort to study, supplement, and invent more effective reading programs. The success of these efforts has not been overwhelming; for example, Headstart programs seem to have no real long-term educational benefit.

The problem in Hawaii is, no doubt, in part, an effect of the same causes which affect other ethnic groups. But there is good reason to believe that the problems of the Hawaiian child are also specific ones. For example, the apparent reading skill of the school children of the entire State is distressingly low. It also appears, by a comparative analysis of different schools, that the ethnic Hawaiian and part-Hawaiian child suffers an especially serious problem in learning to read. (A Technical Report #26 details these comparative figures).

This certainly fits with the educational "folklore" of the State. It is generally stated by educators that it is, in general, extraordinarily difficult to teach Hawaiian children to read. In our initial survey of Island teachers and principals, a descriptive pattern emerged, in which a) Hawaiian children arrive at school ill-prepared in reading readiness, b) slow progress is made in K and 1st grade acquisition of letter recognition and sight vocabulary, c) acquisition of decoding skills also suffers, d) by the end of second grade, they are clearly and seriously behind, e) by the end of third grade, the problem is so serious that general school alienation begins from the 4th grade on.

This situation is of extreme concern to parents, to the schools, and to our whole society. The State Department of Education has thrown massive resources into attempted solutions. The State Legislature, and other institutions, have committed funds generously to the DOE's inventive initiatives, notably the HEP program, and supplemental efforts such as the vigorous and competent Kalihi Task Force. The DOE has received high marks nationally in the quality of its teaching and for its pursuit of the State's reading problems.

Yet the problem persists. It would be fruitless for anyone to demand that the DOE have solutions imported. Mainland consultants can sometimes be used with benefit, but their contradictory advice has more enthusiasm than supporting data. In our view, this problem of massive proportions can only be approached by a careful and detailed research program in Hawaii. Such a program will require research resources far beyond those characteristically available to any public educational system. This is where KEEP fits in.

This paper outlines the reading research strategy for KEEP during its initial five-year project term. We have no illusions that the problem will be entirely untangled and successful programs designed and tested during this period. The problem is too big for that. However, we have, by 1974, made considerable progress, both in findings and in the creation of a well-functioning research and demonstration program. This paper focuses on the strategies employed in the reading research. It outlines the conceptual guidelines employed, and points toward specific research inquiries. A series of Technical Reports on specific research findings is now in preparation, and this series will

be continued as data analysis are completed.

The Strategies Not Chosen

It would have been very easy to instantly produce better-than-average, perhaps even excellent, reading programs in the KEEP Demonstration School. We would have merely "recruited" (or raided) the schools of Hawaii for their most able students. Able Hawaiian students certainly exist. The ranks of the State's leadership are increasingly filled by brilliant Hawaiian men and women. The campus of the Kamehameha Schools itself has educated thousands of Hawaiian young people who are above national norms in reading and all other academic skills. Being "Hawaiian" does not determine reading problems.

We might also have brought in the best reading teacher in the country, and in effect said, "See, it can be done." This would not, in and of itself, be an important demonstration. Everyone knows that some teachers are more effective than others; there are even geniuses of reading-teaching, such as the legendary Myrtle Kaapu. But a state system cannot rely on a few artists. We need such a clear understanding of the issues controlling reading acquisition that the average teacher can use them; and these teaching skills must be conceptualized before they can be taught to other teachers.

This is not to say that we have ignored the master teacher. We have consulted with them, imported them as consultants, observed them in the public schools, trained our staff under them in local and mainland settings. These experiences were of great value in establishing the conceptual framework of the KEEP program, and in designing our studies of effective teaching practices. For our own reading teachers,

however, we have employed young, intelligent, promising local teachers, perhaps different from public school counterparts primarily in their interest in long-range reading research.

As our "research subjects", we have the children of the KEEP school, who are described in Technical Report #13. In brief, they are typical of the school children of Kalihi--with neither more nor less school aptitude than those of Kalihi elementary schools. A part of our research design is to continually test ourselves against the achievements of the public school children, a procedure in which DOE administration and teachers have been most generously cooperative.

By some consultants and educational innovators, we have been advised to approach the problem in a way radically different from our own. In effect, their view is that Hawaiian children may become "ready to learn" to read at a later point than the national norm, and that the school alienation problem could be eliminated by removing the pressure to learn to read. A happy, stimulating school environment will create conditions in which a child will come to want to read, in his or her own good time; after all, most people do learn to read eventually, even in a school setting which is nigh-pressure for reading skills. In this way, the argument goes, schools may be creating their own problem by attempting reading too early. This view has some currency, and is broadly associated with the "experimental", "free", or "open" school movement.

We have not adopted this view for the KEEP program. In the first place, there is no evidence that most children do learn to read better in this way, and there is good logical reason to believe that

children who do prosper under this procedure are those who would read best in any program. Further, we do not believe that modern society will ever adopt an educational curriculum which does not require reading for its successive components. There is no lack of free schools, or of experimental, innovative non-reading school programs around the country. If they ever produce any evidence of superior achievement, we (and society at large) will be very interested to see those data. In the meantime, we have opted for teaching reading to children.

The Basic Design of the KEEP Reading Research

The basic goal of the KEEP program is a clear one: to discover ways of improving the reading skills of the Hawaiian elementary school child. To do so, we must determine factors which influence reading acquisition. This can be done best in a context of actual reading instruction. Our basic "laboratory" is a school whose purpose is research and demonstration, but which also has responsibilities for the actual education of its pupils. An early decision was made that all research must be designed around instructional programs which are as effective for the children as we can make them, at any point in time—none of our pupils will suffer in any way for long-term research goals. We have not compromised this position in any way; control group data demonstrate that our first group of K-1 children have acquired reading skills almost identical to other comparable Kalihi schools.

The fact that they did no better than control-school subjects is a valuable finding, as will be discussed below. But, it is not necessarily surprising, because our overall strategy called for in-

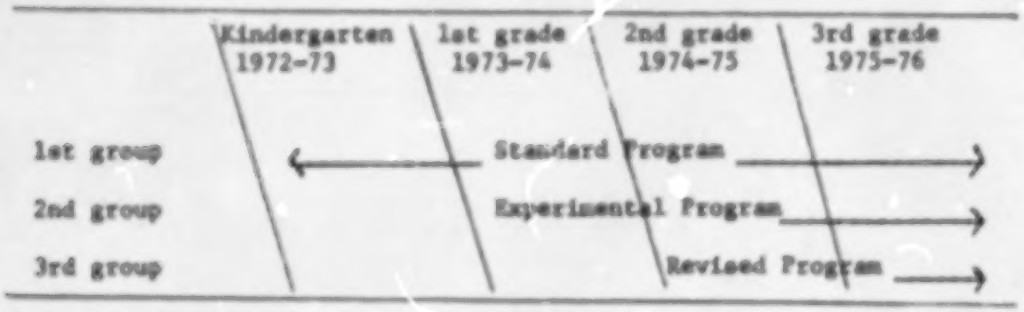
stalling a typical curriculum for our first class. The program selected was the basal-reader Ginn 360 series, which is a widely used, middle-of-the road program. The goal here was to allow our research staff a close inspection of the vicissitudes of ordinary reading instruction of a type found in the public schools, an inspection so close that it could only occur when it was in our own setting. We did not believe that the outcome of this program could be any different than if it would be operated in any other school, but we would be able to keep detailed daily records of the course of learning, of the children's and the teachers' behaviors, and in this way obtain a microscopic picture of the typical problem situation.

It is our intention to continue this procedure for the first class as they move through the third grade, charting the course of learning through the advancing basal-reader goals.

Because we plan no major intervention in this curriculum, for this group, we can only develop hypotheses from the mass of data collected on these children. These hypotheses will then be tested experimentally on the second entering class of children. That is, we will make program alterations on the basis of factors identified as of probable importance, and test their actual importance by varying procedures within the second group. For example, analysis of the first group data indicates that a "breakthrough" seems to occur one-fourth of the way through learning the alphabet, so that the second portion is learned much more rapidly than the first. Would it be possible to intensify instruction during this early period, thus getting the breakthrough earlier in the year, allowing more to be learned in the

months remaining.[2] This question can be answered quickly by the second group, simply by dividing them in half, and intensifying instruction for one while not for the other.[3] This question can probably be answered in three weeks, compensatory instruction provided if one condition proves superior, and then move on to a second three-week "experiment" on another issue.

This second group should, then, provide hard answers to several important questions. This will then allow us to make major revisions in the overall instructional program for the third entering group. The program for the third group will be an overall instructional program which incorporates all our experimental findings. Assessment of this group will determine whether "experimental" procedures hold up when adapted to a feasible public-school-like program. The plan can be represented in diagram:



Of course, this does not encompass all our research activities. Correlational analyses are continuing, and are identical for all

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2 This is only one of 10 or 15 major hypotheses emerging from first-group data. The entire list of planned inquiries will be discussed.

3 A basic part of our procedures calls for restitution and cross-over designs. This will insure that each child will appear in "experimental" and "control" conditions equally, across experiments; and that all children will be taught to equivalent criteria, should some conditions prove superior.

groups. A supplemental summer program of experimentation has proven fruitful. Control group studies from other schools are carried out regularly. Consultation and visitation programs continue and there are mutual contributions among reading research programs, and the linguistic, motivational, cognitive, and family study programs (described in their separate Technical Reports).

The Conceptual Framework for Research

No research program can operate in a random hit-or-miss fashion. Hypotheses and operations must be guided by some conceptual and analytical scheme which focuses attention on major issues. Any conceptual scheme, our own included, will be revised in the light of emerging findings. But thus far, our conceptual analysis is holding up well. It was devised from our interviews with Hawaii educators, from previous research in reading, from the literature in the psychology of learning, and from logical analysis. It divides the problem of learning to read for Hawaiian children into several, semi-separate domains. They are: motivation, linguistics, and instruction procedures. In addition, wide-ranging correlational studies are performed. In each of these areas, research activities are current, but, of course, progress is not uniform across all. For example, our results in motivational issues are nearly definitive; while the cognitive-style research is still in the prototype stage. Each of these areas will now be discussed in general terms. Detailed results will be published in separate Technical Reports, several of which are now in preparation.

Motivational Issues

If there is one preferred explanation of the problem by teachers in Hawaii, it is certainly one of motivation. While this term is not always used, it seems to encompass a variety of descriptions of the typical Hawaiian elementary school child as "uninterested", "inattentive", "unmotivated", "lazy", "short attention span", etc. The unifying element seems to be that the children do not want to learn, or that they are unwilling to engage in the acts that produce learning. These complaints are not restricted to the reading area, but because reading is the foundational skill, they are most crucial here.

The overall KEEP research strategy has been to concentrate our initial investigations in this area of motivation, not only because of the pervasiveness of the complaints, but because it is logical that a child cannot learn to read unless he engages in the behaviors which lead to reading. In this sense, a motivational problem would even preclude further investigation of other problems. Furthermore, many teachers will argue that the motivational problem is the problem. That is, if the children would "try", they could learn perfectly well.

A further reason for beginning with the motivational question is that the project began well-equipped to deal with these issues, due to the enormous amount of research data present in the international literature, as well as the authors' previous work in these areas. The overall motivation rationale, research, and procedures are presented in Technical Report #24.

In reading, the basic research question was this: Given a standard sound reading instructional program (such as our first group's

Ginn 360 series), if motivation of the children is maximized so that they do vigorously engage in and perform the required acts of the program, then will their reading achievement be satisfactory?

The research project was carried out, and the results are presented in Technical Report #26. A high degree of child involvement was achieved, not only in the reading program, but in the school's overall activities. On-task percentages indicate that these children were indeed as motivated as any other (although, as is reported elsewhere, systematic programs of social and token reinforcement were necessary to maintain motivation; it did not come easily).

The results indicate that even when the motivation problem is "solved", reading achievement remains woefully below national norms.

Even though these "negative" results may be disappointing, they are crucially important. They do not indicate that motivation is unimportant; we know that motivation must be present, that it requires work to achieve, and furthermore, we now know how to achieve it. But, we also know now that it is not enough. Other factors influencing reading acquisition must be discovered and controlled.

Linguistics

Another potential source of difficulty lies in language. Hawaiian Creole (HC), or pidgin, is different enough from Standard English that there can be no doubt that some educational problems are created, as would be the case when any first language code of a child is different from the language code of instruction. But what are these problems? Here we have a wealth of opinion and a poverty of

fact; this issue has been reviewed in Technical Report #14. The discussion here will be restricted to linguistic interference with reading acquisition.

Phonemic Interference

The inventory of sounds used in HC and SE are somewhat different. For example, the th of "this" and "them" does not occur in HC. Will this fact make it more difficult for a child to learn to read th words? If by reading we mean the establishment of phoneme-grapheme correspondences, it might; if we mean by reading the establishment of grapheme-referent correspondences, it might also. On the other hand, the number of non-overlapping phonemes in the two codes is not proportionately large, and phonemic interference could play no important role in reading acquisition. This question is being investigated in several ways, through construction of particular phonetic tests, and through comparison of the rate of acquisition among various phoneme-grapheme relationships. These data are only slowly coming available because our first group is only now entering the crucial stage of instruction. Preliminary data do not appear to support the hypothesis of phonemic interference, but it must remain an open question for the time being.

Syntactic Interference

Certain syntactic forms are different in HC and SE; these differences are discussed and exemplifed in Technical Report #15. When learning to read SE, will the existence of competing HC syntax interfere with comprehension? Again, this research has been carefully prepared, but our first group readers will not be in the crucial stage of

instruction until 1975.

Implications of Linguistic Research

The dual language system in Hawaii produces heated discussion of reading implications. In recent years, much progress has been made in according to HC a greater dignity and value. This cannot but help to increase the self-esteem and sense of worth of HC-speakers. Some enthusiasts argue that early reading instruction should be in the child's first language (HC), thus engaging the child's motivation and comprehension. At the opposite end is the position that Island children know enough SE to learn to read it, and that reading is a cognitive task of establishing grapheme-meaning correspondences, which can take place as well in one code as in another; since there is virtually no written HC literature, it is wise to conduct reading instruction in SE. Every intermediate shade of opinion also exists.

Our research strategy again calls for exploring the consequences of the current system, and testing outgrowth hypotheses. To have created an HC reading program would have consumed our entire resources, and there is, as yet, no hard evidence to support the merit of such a view. If, on the other hand, linguistic interferences do appear, we will explore methods of overcoming them, either through 1) supplemental instruction in problematic SE forms, or 2) inclusion of HC forms in early reading instruction. If, however, there are no differences in acquisition between HC-SE congruent forms, and HC-SE interfering forms, we can concentrate our efforts on other aspects of the reading program.

Instructional Procedures

From the preceding studies, from the general literature of reading research, and most of all, from our own experience in teaching reading to our first class of Hawaiian children, we develop hypotheses suitable for specific, controlled studies (as described above, Procedures section). Two major studies of this type were completed in the summer of 1974, and reports are now in preparation.

There follows below an outline list of planned topics of study during 1974-75. Because data from each study should influence the design of the next, we are not fully committed to any order or to design specifics at this time. However, the list is representative, at least, and indicates planning for spring of 1975. Following the list, there appears a detailed research proposal for the first of this series--a study which is in progress at this writing. It is included here to illustrate the methods which this line of inquiry employs. As can be seen, the five "experimental stimuli" are five letters which the children are now ready to learn; this exemplifies the way that research and instruction can be coalesced, with no loss to either.

Planned Studies in Reading Acquisition

by

Kathy Au and Gisela E. Speidel

1. Application of the Staats box reinforcement method (see Technical Report #9) to learning of grapheme-phoneme correspondences.

   group: 10 low IQ children from 1st and 2nd grade who have shown great difficulty in learning these correspondences

   -individual training

-b part - include response cost

2. Investigation of the learning to learn phenomenon in acquisition of grapheme-phoneme correspondences.

group: 20 top IQ children from kindergarten class

group 1 - same 5 letters as used last year at beginning

group 2 - easiest letters, as shown by last year's study

group training

3. How many items should be taught simultaneously for most efficient learning rate - 1 - 2 - 4 etc?

4. What is the ideal spacing of trials for slow learners in acquisition of grapheme-phoneme correspondences?

If different acquisition rates are found - different spacing of repetitions, then is this the case also for our medium and higher IQ children?

Present 2nd's and 1st's slow learners?

5. Is individual or group training more efficient for the slow learners?

-Ss: slow K's

Teach 5 letters in group and 5 individually

Teacher time held constant for 2 groups and teaching method

6. Labelling

Individual Instruction
Child to label and describe letter
A type of mnemonic device which the students apparently are using at present - e.g., they learn that "Fili" stand for the name Fili. They are then taught the letter F.

If individual association effective - then rule teaching will be attempted as in Labelling study.

-Replication of Kagan's 1968 experiment in which he found that response time on his tests correlated with reading achievement

generalization - How can one teach our children to generalize?

7. Is a motor response (button push or pull) to a visual stimulus an appropriate response measure for testing various methods of instruction (independent variables)

8. Assessment of reading errors:

   (a) oral reading errors:

   Pilot test has been developed - now a test must be developed in which also non-problem items are included, so that one can then make differential predictions for items on which reading errors will be likely to occur and items on which they are unlikely to occur: Differential predictions being based on similarity versus dissimilarity between Standard English and Pidgin.

   (b) Comprehension errors:

   - develop a test to measure errors of comprehension

   (i) use items in test on which one would predict errors from knowledge of Standard English and Pidgin e.g. three and tree

   (ii) To test comprehension make pictures that represent both the misinterpreted and correct versions plus fillers

Effects of Vicarious Trials on Acquisition of Phoneme-Grapheme Correspondences

Gisela E. Speidel

Subjects: Twenty kindergarten children, chosen according to highest IQ scores. Children will be pretested on knowledge of consonant sounds.

Design: The children will be matched by IQ and knowledge of sounds of each of the ten matched pairs. One child will be assigned to group instruction, the other to the individual training condition. It is a repeated measures design; the children first in the group condition will then be assigned to the individual condition and vice versa.

Procedure

The children will first be given a study trial in which the teacher names each letter. The teacher has piles of cards with letters in front of her. Each pile has the name of one of the students on it. She takes the top card on one of her piles, holds up the letter to the class, then calls on the child from whose pile the card was taken to respond. If the child is correct, she marks a "c" on the card. If he is incorrect, she tells him the correct sound, marks the card with an "x" and puts it on the bottom of the pile. She then randomly chooses another pile, picks up the card and calls on the child whose pile she has chosen, and so on, until all the cards for every child have been used. At the end of each session, the trials correct and incorrect for each letter presented to each child are recorded.

The number of trials each child receives per day are identical (pilot for best number of trials), and the five letters are presented randomly over trials.

The individual instruction condition is also conducted in the classroom. The teacher calls up each child individually and seats him across the table from her. The first trial is a study trial in which the teacher holds up each letter and responds to it with the appropriate phoneme. She then holds up the first card and asks the child to respond to it. If the child is correct, she nods or smiles to reinforce him and records this on the record sheet. If the child has responded incorrectly, she tells him the correct response. In this manner, the teacher goes through all the cards prepared for this trial. The number of trials and the sequence of letters are identical to the matched S in the group condition.

In the group condition, instruction continues until all children have reached criterion, namely, two correct consecutive trials on each letter, or until each child has had 60 trials. A child who has reached criterion earlier will be retained in the group to the end.

In the individual condition, a child is instructed only until he has reached criterion at which point the instruction is discontinued.

Materials: A deck of cards with five lower case letters, - - - - - for group 1 in condition A and - - - - - for group 2 in condition B is made up for each S. A second deck containing the lower case letters, - - - - - are constructed for group 1 in condition B and group 2 in condition A. The cards are 5" x 8" and the letters are printed in black 3" tall and 2" wide.

A record sheet recording the letter sequences and the accuracy of the response is parepared for each S.

Data Analysis

A repeated measures analysis of variance on number of letters learned after 10, 20, and 30 trials will be performed, as well as on number of trials to criterion for each condition.

Correlational Studies

One general strategy of KEEP research is correlational; that is, to analyze through statistical techniques the interrelationships among a large number of variables. This largely an informed fishing expedition! We know from previous research, many variables which either index or predict educational achievement, but we do not know the relationships for this population. These analyses have also revealed surprising relationships, providing clues to fruitful lines of inquiry.

The overall KEEP correlation matrix potentially includes hundreds of variables. The ones reported here, for reading, are only illustrative. Since they are based only on our first class, the small number of children prevents any definitive statement. As results from subsequent classes are added, confidence in the correlation coefficients will increase. But we do keep the analyses current because they point to variables which deserve closer scrutiny. The following table, then, should be considered only as illustrative and tentative.

The first column of coefficients refers to scores on the Gates-McGinity Test of Reading, a standardized test of reading skills. The second column refers to the number of goals in the KEEP-Ginn Series met by each child in our own reading instruction program. The third column, "Gain Scores", is based on the improvement in KEEP-Ginn skills shown by individual children from the beginning of instruction in the fall to the end of the school year, 1973-74.

Since these coefficients are tentative, it is inappropriate to discuss them in detail. The trend seems to be this: reading competence is highly related to intelligence, ability in Standard English, and "school readiness". A more complete discussion of these findings is now in preparation.

Class 1 (1973-74 1st graders) n=24

Spring '74	Gates Std	Read Skills	Gain Score
Wisc total	.666	.463 *	.600
Verbal	.547	.428 *	.560
Perform	.620	.392 N.S.	.496 *
Inform	.552	.506 *	.616
Compreh	.325 N.S.	.329 N.S.	.366 N.S.
Arith	.444 *	.258 N.S.	.356 N.S.

Spring '74	Gates Std	May '74 Read Skills	Gain Score
Similar	.386 N.S.	.299 N.S.	.456 *
Vocab	.493	.336 N.S.	.425 *
Digit span	.624	.531	.656
Picture Comple	.424 *	.177 N.S.	.343 N.S.
Picture Arrange	.449 *	.331 N.S.	.4[illegible]8 *
Block Des	.393 N.S.	.161 N.S.	.234 N.S.
Obj Assembly	.429 *	.358 N.S.	.452 *
Coding	.638	.444 *	.438 *
WPPSI-fall 72			
full	.765	.574	.662
verbal	.710	.557	.628
perform	.732	.524	.622
inferm	.629	.375 N.S.	.500 *
vocab	.556	.421 *	.460 *
arith	.586	.429 *	.524
similar	.630	.575	.621
Compreh	.666	.550	.579
Sentences	.497 *	.480 *	.587
Animal House	.678	.565	.651
Picture Compl	.439 *	.346 N.S.	.468 *
Mazes	.389 *	.260 N.S.	.294 N.S.
Geo Des	.642	.464 *	.509 *
Block Des	.562	.265 N.S.	.329 N.S.
MAT-spring 73	.759	.621	.714
ITPA comp pla	.405	.170 N.S.	.371 N.S.
Mean scaled	.232 N.S.	-.014 N.S.	.216 N.S.
aud recep	.152 N.S.	-.053 N.S.	.155 N.S.
visual recep	.400 N.S.	.617	.520
visual mem	.528	.669	.505 *
aud assoc	.717	.748	.793
aud mem	.326 N.S.	.197 N.S.	.373 N.S.
visual assoc	.139 N.S.	-.122 N.S.	.067 N.S.
visual closure	.583	.778	.615
verbal express	.004 N.S.	-.258 N.S.	-.066 N.S.
gram closure	.333 N.S.	.143 N.S.	.339 N.S.
manual express	.348 N.S.	.120 N.S.	.242 N.S.
aud closure	.258 N.S.	.017 N.S.	.228 N.S.
sound blend	.167 N.S.	-.017 N.S.	.203 N.S.
SERT-fall 72	.584	.510 *	.614
SERT-spring 74	.699	.509 *	.635
HCE SERT to fall 72	-.246 N.S.	-.170 N.S.	-.262 N.S.
HCE SERT to spring 74	-.558	-.282 N.S.	-.392 N.S.
HCRT-March 73	-.057 N.S.	-.033 N.S.	-.022 N.S.
SE to HCRT	.491 *	.468 *	.512 *
Change scores (1972-73)			
full IQ	-.427 *	-.256 N.S.	-.251 N.S.
Verbal	-.277 N.S.	-.157 N.S.	-.091 N.S.
Perform	-.383 N.S.	-.229 N.S.	-.275
Metro T	.014 N.S.	-.072 N.S.	-.051 N.S.
Metro raw	-.394 N.S.	-.418 *	-.436 *
SERT	.353 N.S.	.317 N.S.	.363 N.S.

* $p < .05$; all others $p < .01$ N.S. = not significant

Assessment of Overall Progress

The overall reading research program is now fully operational, and running well. It is too early to gauge its merit entirely; the crunch will come about a year from now, when the new instructional program is implemented for class three.

Nevertheless, some solid achievements are already evident. We know now that an increase in motivation, when holding a standard instructional program, is not sufficient to produce on-par reading achievement.

We also have preliminary evidence supporting the stage-wise research strategy. The second class appears to be progressing at a much more rapid rate than the first class. A number of crucial experiments have revealed themselves, and plans for their performance are now firm.

While it is premature to discuss it, we are optimistic that the mass of data is falling into order, and that the Final Report will include an overall conception of the Reading issue, together with recommendations for implementation.